

REMARKS

The Office Action mailed August 15, 2006 has been received and reviewed. By the present Response and Amendment, Applicant has amended Claims 1, 3-6, 9, 12-17, 21, 32, 36 and 38, and has canceled Claims 18 and 39. No new matter has been introduced by virtue of the amendments to Claims 1, 3-6, 9, 12-17, 21, 32, 36 and 38.

First, the Office Action objected to Claims 1, 12, and 32 due to certain informalities. In each of these claims, the Office Action required changing of “and,” to “and” in order to remove the commas following the word “and”. Responsive thereto, Applicants have amended Claims 1, 12, and 32 as required by the Office Action.

Second, the Office Action rejected Claims 1-6, 9, 12-21, 26-38, and 40-43 under 35 U.S.C. §102(e) “as being anticipated by Yu et al. (U.S. 6,448,722 B1).” In response thereto, Applicants traverse this rejection of Claims 1-6, 9, 12-21, 26-38, and 40-43, but have nonetheless amended Claims 1, 3-6, 9, 12-17, 21, 32, 36 and 38 to more clearly claim Applicants’ invention. Applicants also include the below remarks and/or arguments with respect to each rejected claim.

With respect to Claim 1, Applicants note that Yu discloses a particle accelerator having two sections with each section having its own port for the receipt of radio-frequency power. More particularly, as stated in Yu at Column 5, Lines 25-28, the particle accelerator is “split into two sections 50 and 60, each powered by a separate rf feed through rf ports 64 and 66” (emphasis added). Notably, no radio-frequency power propagates from one section to the other section. In contrast, Applicants note that the accelerating section of their particle accelerator system includes a port for receiving radio-frequency power that is the sole and only port of both the accelerating section and the bunching section for receiving radio-frequency power. No other port is present in Applicants’ particle accelerator system for receiving radio-frequency power. In Applicants’ particle accelerator system, radio-frequency power enters the accelerating section from a single radio-frequency power source via the sole and only port, propagates through the accelerating section in a direction generally toward the bunching section, passes through a special passageway extending between the accelerating and bunching sections for the

communication of radio-frequency power to the bunching section, and then propagates into the bunching section. Applicants have, therefore, amended Claim 1 accordingly to highlight this distinction over the particle accelerator of Yu and submit that based at least upon this distinction, amended Claim 1 is not anticipated nor rendered obvious by the art of record and is, hence, allowable.

Regarding Claim 2, Applicants refer to the above remarks and again reiterate that Yu discloses a particle accelerator having two sections with each section having its own port for the receipt of radio-frequency power. Each section of the Yu particle accelerator is powered by a separate radio-frequency feed through rf ports 64 and 66. Because the particle accelerator of Yu requires two rf ports 64 and 66 to feed radio-frequency power to the two sections thereof and because the cooling water inlets 70 include a wall between the two sections of the particle accelerator, it is respectfully obvious that no radio frequency power propagates from one section to the other section. Thus, the two sections of Yu are not coupled for the communication of radio-frequency power from one section to the other section. In contrast and is claimed in amended Claim 1, Applicants note that the accelerating section of their particle accelerator system includes a port for receiving radio-frequency power that is the sole and only port of both the accelerating section and the bunching section for receiving radio-frequency power. No other port is present in Applicants' particle accelerator system for receiving radio-frequency power. In Applicants' particle accelerator system, radio-frequency power enters the accelerating section from a single radio-frequency power source via the sole and only port, propagates through the accelerating section in a direction generally toward the bunching section, passes through a special passageway extending between the accelerating and bunching sections for the communication of radio-frequency power to the bunching section, and then propagates into the bunching section. Thus, the bunching section and accelerating section of Applicants particle accelerator system are coupled for the communication of radio-frequency power from the accelerating section into the bunching section. For at least these reasons, Applicants contend that Claim 2 is not anticipated nor rendered obvious by the art of record and is, hence, allowable as written.

With respect to Claim 3, Applicants refer to and reiterate the above remarks and note additionally that Yu fails to disclose a passageway adapted to allow radio-frequency power to propagate from one section to the other section as claimed by Applicants in Claim 3. While Yu does disclose a drift tube 61 for allowing a beam of accelerated electrons to pass from its first section into its second section, the drift tube 61 is not adapted to allow radio-frequency power to propagate from one section to the other section. Also, it should be noted that in particle accelerator design, "drift tubes" generally comprise regions where no radio-frequency power is present and, hence, there is no electric field present to accelerate electrons. Thus, the electrons "drift" through the tube from one section to another section of the particle accelerator. Nonetheless, Applicants have amended Claim 3 to claim that the passageway of Applicants' particle accelerator system for allowing radio-frequency power to propagate from the accelerating section into the bunching section is offset from a longitudinal axis defined by the accelerating and bunching sections. Thus, the passageway is also offset relative to a separate drift tube that extends between the accelerating and bunching sections of Applicants' particle accelerator system. Further, Applicants note that amended Claim 3 is dependent on amended independent Claim 1 and, therefore, includes all of the elements and limitations thereof. For at least these reasons, Applicants submit that amended Claim 3 is not anticipated nor rendered obvious by Yu or the other art of record and that amended Claim 3 is, hence, allowable.

In regard to Claim 4, Applicants have amended Claim 4 to move the elements and limitations of the first clause of Claim 4 as filed to amended Claim 1 discussed above. Applicants also refer to and reiterate the above remarks and note that rf port 64 of the first section 50 of the Yu particle accelerator feeds only the first section 50 with radio-frequency power from a radio-frequency power source. Similarly, rf port 66 of the second section 60 of the Yu particle accelerator feeds only the second section 60 with radio-frequency power from a radio-frequency power source. There is no single rf port in Yu that feeds both the first section 50 and the second section 60 with radio-frequency power from a radio-frequency power source. Thus, there is no radio-frequency power source that supplies radio-frequency power to both sections 50, 60 through a single rf port. In contrast and as claimed in Claim 4, Applicants'

particle accelerator system includes a radio-frequency power source that is connected to a sole and only port of both of the accelerating and bunching sections. Because the port is the sole and only port, the radio-frequency power source of Applicants' particle accelerator system supplies radio-frequency power to the accelerating section and to the bunching section through the port. For at least these reasons, Applicants contend that amended Claim 4 is not anticipated nor rendered obvious by Yu or the other art of record. Therefore, Applicants contend that amended Claim 4 is allowable.

With respect to Claim 5, Applicants have amended Claim 5 to more appropriately claim that the sole and only port of Applicants' particle accelerator system is defined by the accelerating section thereof proximate the end of the accelerating section at which a beam of accelerated charged particles is output and not at such end. Also, Applicants refer to and reiterate the above remarks in noting that the port of the accelerating section of Applicants' particle accelerator system comprises the sole and only port of the accelerating and bunching sections of Applicants' particle accelerator system for receiving radio-frequency power from a radio-frequency power source. Applicants additionally note that Claim 5 depends from amended Claim 4 and ultimately from amended independent Claim 1 and, therefore, that Claim 5 includes the elements and limitations of amended Claims 1 and 4 by virtue of such dependency. Thus, Applicants submit that, for at least these reasons, amended Claim 5 is not anticipated nor rendered obvious by Yu or the other art of record and is, hence, allowable.

Regarding Claim 6, Applicants have amended Claim 6 to clarify that the bunching and accelerating sections of Applicants' particle accelerator system are adapted to receive radio-frequency power from a single radio-frequency source through the sole and only port of the accelerating and bunching sections for receiving radio-frequency power. Applicants again refer to and reiterate the above remarks in noting that the radio-frequency power for both the bunching and accelerating sections of Applicants' particle accelerator system is supplied from a single radio-frequency power source through the port of the accelerating section. This is in contrast to the particle accelerator disclosed by Yu that has one port for providing radio-frequency power only to its first section and a second, different port for providing radio-frequency power only to

its second section. Also, Applicants note that amended Claim 6 is dependent from amended Claim 1. Thus, amended Claim 6 includes all of the elements and limitations of amended Claim 1 due to such dependency. For at least these reasons, Applicants contend that amended Claim 6 is not anticipated nor rendered obvious by Yu or the other art of record. Therefore, Applicants contend that amended Claim 6 is allowable.

With respect to Claim 9, Applicants have amended Claim 9 to highlight that the accelerating section of Applicants' particle accelerator system is communicatively interposed between the bunching section and the radio-frequency power source for the communication of radio-frequency power from the radio-frequency power source to the bunching section through the accelerating section. Applicants refer again to the above remarks and note further that in contrast to the particle accelerator of Yu, radio-frequency power in Applicants' particle accelerator system propagates from its sole and only port for receiving radio-frequency power through the accelerating section to the bunching section. The bunching section is not fed radio-frequency power directly from a port as is the case with the first section of the Yu particle accelerator. Thus, Applicants submit that amended Claim 9 is not anticipated nor rendered obvious by Yu or the other art of record, and that amended Claim 9 is allowable.

In regard to Claim 12, Applicants have amended Claim 12 to clarify that the coupling cavity of Applicants' claimed particle accelerator system comprises a resonant coupling cavity interposed between the bunching and accelerating sections. In Applicants' particle accelerator system, radio-frequency power propagates through the resonant coupling cavity as it passes from the accelerating section into the bunching section, thereby exposing the beam of charged particles to an electric field that may further accelerate the charged particles. In contrast, the particle accelerator disclosed by Yu does not include a resonant cavity interposed between its first and second sections. Instead, the Yu particle accelerator has a drift tube that extends between the first and second sections to enable the beam of charged particles to pass from the first section into the second section. As noted above, "drift tubes" in particle accelerators generally comprise regions where no radio-frequency power is present and, hence, there is no electric field present to accelerate electrons. Thus, the drift tube of the Yu particle accelerator

does not comprise a resonant coupling cavity as claimed in amended Claim 12. Due at least to this substantial difference, Applicants contend that amended independent Claim 12 is not anticipated nor rendered obvious by Yu or the other art of record and, hence, that amended independent Claim 12 is allowable.

With respect to Claim 13, Applicants have amended Claim 13 to highlight and maintain proper antecedent basis for the coupling cavity of Applicants' claimed particle accelerator system comprising a resonant coupling cavity defined by the wall extending between the bunching and accelerating sections. Also, Applicants refer to and reiterate the above remarks pertaining to amended Claim 12 in noting again that there is a substantial difference between a drift tube as disclosed by Yu and a resonant coupling cavity as is present in Applicants' claimed particle accelerator system of Claim 13. Due at least in part to this substantial difference and to the dependency of Claim 13 on amended independent Claim 12, Applicants submit that amended Claim 13 is not anticipated nor rendered obvious by Yu or the other art of record. Therefore, Applicants believe that amended Claim 13 is allowable.

Regarding Claim 14, Applicants have amended Claim 14 to clarify and maintain proper antecedent basis for the coupling cavity of Applicants' claimed particle accelerator system comprising a resonant coupling cavity defined by the wall extending between the bunching and accelerating sections. Also, Applicants refer to and reiterate the above remarks related to Claims 12 and 13 in noting that there is a substantial difference between a drift tube as disclosed by Yu and a resonant coupling cavity as is present in Applicants' claimed particle accelerator system of amended Claim 14. Additionally, the first passageway of Applicants' particle accelerator system extends between the bunching section and a resonant coupling cavity rather than a first section and a drift tube as in the Yu particle accelerator. Similarly, the second passageway of Applicants' particle accelerator system extends between the accelerating section and a resonant coupling cavity rather than a second section and a drift tube as in the Yu particle accelerator. Due at least in part to this substantial difference in a resonant coupling cavity and a drift tube, Applicants assert that amended Claim 14 is not anticipated nor rendered obvious by Yu or the other art of record. Hence, Applicants further assert that amended Claim 14 is allowable.

With respect to Claims 15 and 16, Applicants have amended Claims 15 and 16 to clarify and maintain proper antecedent basis for the coupling cavity of Applicants' claimed particle accelerator system comprising a resonant coupling cavity defined by the wall extending between the bunching and accelerating sections. Applicants also refer to and reiterate the above remarks related to Claims 12-14 noting the substantial difference between a drift tube as disclosed by Yu and a resonant coupling cavity as is present in Applicants' claimed particle accelerator system of amended Claims 15 and 16. More particularly, with respect to Claim 15, Applicants note that it is the first passageway, second passageway, and resonant coupling cavity (and not a drift tube) that enable radio-frequency power to propagate from the accelerating section to the bunching section of Applicants' claimed particle accelerator system. Similarly, with respect to Claim 16, Applicants note that it is the first passageway, second passageway, and resonant coupling cavity (and not a drift tube) that enable charged particles to travel from the bunching section to the accelerating section of Applicants' claimed particle accelerator system. At least by virtue of the substantial difference between a resonant coupling cavity and a drift tube, Applicants submit that amended Claims 15 and 16 are not anticipated nor rendered obvious by Yu or the other art of record. Therefore, Applicants submit that amended Claims 15 and 16 are allowable.

In regard to Claim 17, Applicants have amended Claim 17 to clarify that the coupling cavity of Applicants' claimed particle accelerator system comprises a resonant coupling cavity. Applicants also refer to and reiterate the above remarks related to Claim 12 noting the substantial difference between a drift tube as disclosed by Yu and a resonant coupling cavity as is present in Applicants' claimed particle accelerator system of amended Claim 17. In light of those remarks, it seems obvious that the drift tube of the Yu particle accelerator is not adapted to communicate radio-frequency power from the second section to the first section thereof whereas the resonant coupling cavity of Applicants' claimed particle accelerator system is particularly adapted to communicate radio-frequency power from the accelerating section to the bunching section of Applicants' particle accelerator system. As a consequence, Applicants contend that amended Claim 17 is not anticipated nor rendered obvious by Yu or the other art of record and that, therefore, amended Claim 17 is allowable.

With respect to Claim 18, Applicants have incorporated the limitation of Claim 18 pertaining to the coupling cavity of Applicants' particle accelerator comprising a resonant coupling cavity into amended independent Claim 12. Thus, Applicants have canceled Claim 18 without prejudice.

Regarding Claim 19 and in support of the rejection of Claim 19, Applicants note that the Office Action initially identified output port 29 of the Yu particle accelerator as corresponding to the port identified in Claim 19. Then, the Office Action further identified a radio-frequency power source connected to the port. Applicants respectfully submit that the output port 29 of the Yu particle accelerator is not connected to any radio-frequency power source as required by the elements and limitations of Claim 19. Thus, Applicants contend that the rejection of Claim 19 on the basis of the Yu output port and radio-frequency power source anticipating the port and radio-frequency power source of Claim 19 is, respectfully, erroneous. Further and as has been already noted in the remarks above, Applicants note that the radio-frequency power source of Applicants' particle accelerator system claimed in Claim 19 is adapted to supply radio-frequency power to both the accelerating and bunching sections through the port of the accelerating section. In contrast, the particle accelerator disclosed by Yu has a first rf port 64 for supplying only the first section 50 with radio-frequency power and a second rf port 66 for supplying only the second section 60 with radio-frequency power. Thus, Yu does not disclose a particle accelerator system having a single port in its accelerating section through which a radio-frequency power source supplies radio-frequency power to both the accelerating and bunching sections. Additionally, the Yu particle accelerator as has been noted above, does not include a resonant coupling cavity interposed between the bunching section and the accelerating section as in Applicants' claimed particle accelerator of Claim 12 on which Claim 19 depends. For at least these reasons, Applicants assert that Claim 19 is not anticipated nor rendered obvious by Yu or the other art of record and that Claim 19 is allowable as written.

With respect to Claim 20, Applicants note that Claim 20 is dependent on amended independent Claim 12 and, thus, includes the elements and limitations of amended Claim 12 including a resonant coupling cavity interposed between the bunching and accelerating sections.

As has been described above, the presence of a resonant coupling cavity between the bunching and accelerating sections of Applicants' claimed particle accelerator system is substantially different from the drift tube present between the two sections of the Yu particle accelerator. Therefore, Applicants submit that Claim 20 is not anticipated nor rendered obvious by Yu or the other art of record and that Claim 20 is allowable as written.

In regard to Claim 21, Applicants have amended Claim 21 to more clearly claim that the accelerating section of Applicants' particle accelerator system is communicatively interposed between the bunching section and radio-frequency power source for the communication of radio-frequency power from the radio-frequency power source to the bunching section through the accelerating section. As has been described above, radio-frequency power is supplied to the port of the accelerating section of Applicants' particle accelerator system, propagates through the accelerating section, and passes into the bunching section from the accelerating section via a passageway between the accelerating and bunching sections. In contrast, radio-frequency power is supplied to the first and second sections of the Yu particle accelerator by respective rf ports 60 and 66. Thus, radio-frequency power is not supplied to the first section of the Yu particle accelerator by propagation from the second section thereof as is claimed in amended Claim 21. Also, Applicants note that Claim 21 is dependent on amended independent Claim 12 and, thus, includes the elements and limitations of amended Claim 12 including a resonant coupling cavity interposed between the bunching and accelerating sections that is not present in the Yu particle accelerator. For at least these reasons, Applicants contend that amended Claim 21 is not anticipated nor rendered obvious by Yu or the other art of record and that amended Claim 21 is, hence, allowable.

With respect to Claims 26-31, the Office Action supports its rejection of these claims by asserting that cylindrical disks 14 of the Yu particle accelerator define a plurality of bunching cavities therebetween and a plurality of coupling cavities therebetween. Applicants respectfully disagree with this assertion because Applicants cannot find any disclosure in Yu that identifies a bunching cavity or a coupling cavity. Also, Applicants cannot find any disclosure in Yu as to which gaps between consecutive cylindrical disks 14 might comprise bunching cavities and

which gaps between consecutive cylindrical disks 14 might comprise coupling cavities. Thus, Applicants submit that the Office Action's rejection of Claims 26-31 is erroneous for these reasons. Additionally, Applicants note that Claims 26-31 are each dependent on independent amended Claim 12 directly or indirectly and, therefore, include all of the elements and limitations of amended Claim 12, including a resonant coupling cavity interposed between the bunching and accelerating sections of Applicants' particle accelerator system that, as noted in the above remarks, is not disclosed by Yu. Therefore, for at least these reasons, Applicants assert that Claims 26-31 are not anticipated nor rendered obvious by Yu or the other art of record and, as a consequence, assert that Claims 26-31 are allowable as written.

Regarding Claim 32, Applicants have amended Claim 32 to claim that the bunching section of Applicants' particle accelerator system has first and second ends with a plurality of bunching cavities axially aligned along an axis in a direction extending from the first end toward the second end. Applicants have further amended Claim 32 to claim that each of the bunching cavities has a dimension extending in such direction and that each respective dimension of the bunching cavities increases in magnitude for each respective bunching cavity positioned successively in such direction. Applicants note that no such disclosure is present in Yu. Therefore, Applicants submit that amended independent Claim 32 is not anticipated nor rendered obvious by Yu or the other art of record, and that amended Claim 32 is allowable.

With respect to Claim 33, the Office Action asserts that Yu discloses that the bunching section and accelerating section are coupled for the communication of radio-frequency power from the accelerating section into the bunching section. Applicants respectfully disagree with this assertion. As has been described in the above remarks, the Yu particle accelerator has a first section 50 with an rf port 64 for receiving radio-frequency power and a second section 60 with an rf port 66 for receiving radio-frequency power. Because each section 50, 60 has its own respective rf port 64, 66 for receiving radio-frequency power, there is no communication of radio-frequency power from the second section into the first section. In contrast, the accelerating section of Applicants' particle accelerator system is coupled to the bunching section thereof for the communication of radio-frequency power from the port of the accelerating section into the

bunching section. In other words, radio-frequency power is supplied to the accelerating section of Applicants' particle accelerator system and is communicated by the accelerating section into the bunching section. For at least these reasons, Applicants respectfully contend that Claim 33 is not anticipated nor rendered obvious by Yu or the other art of record. Hence, Applicants contend that Claim 33 is allowable.

In regard to Claim 34 and in support of its rejection of Claim 34, the Office Action states that "Yu discloses that the bunching section and the accelerating section are connected by a passageway (see a passageway at the drift element 61) adapted to allow radio frequency power to propagate from the accelerating section into the bunching section." As described in the above remarks and contrary to the Office Action's statements, the drift tube 61 of the Yu particle accelerator is not adapted to allow radio-frequency power to propagate radio-frequency power from one section to the other section. Instead, it is adapted to allow electrons to pass from the first section to the second section. Also, it should be noted that in particle accelerator design, "drift tubes" generally comprise regions where no radio-frequency power is present and, hence, there is no electric field present to accelerate electrons. Thus, the electrons "drift" through the tube from one section to another section of the particle accelerator. Because drift tubes are designed so as to not allow radio-frequency power to propagate therethrough, the drift tube 61 of the Yu particle accelerator does not comprise a passageway adapted to allow radio-frequency power to propagate from the accelerating section to the bunching section as required by the elements and limitations of Claim 34. Further, Applicants note that Claim 34 depends from amended independent Claim 32 and, thus, includes all of the elements and limitations thereof. Therefore, for at least these reasons, Applicants assert that Claim 34 is not anticipated nor rendered obvious by Yu or the other art of record, and that Claim 34 is allowable.

Regarding Claim 35 and in support of its rejection of Claim 35, the Office Action states that "Yu discloses that the accelerating section has a port (the output port at element 29) and wherein the particle accelerator system further comprises a radio-frequency source (not shown and see column 4, lines 60+) connected to the port, the radio-frequency power source being adapted to supply radio-frequency power to the accelerating section and to the bunching section

through the port (see figure 1).” Applicants respectfully note that the output port 29 of the Yu particle accelerator is for emitting charged electrons from the particle accelerator and is not an input port for receiving radio-frequency power. Thus, the output port 29 of Yu is not connected to a radio-frequency source as stated by the Office Action and the radio-frequency power source is not adapted to supply radio-frequency power to the accelerating section and to the bunching section through the output port 29. Further, as noted in the above remarks, the Yu particle accelerator has two separate rf ports 64, 66 for respectively supplying the two sections 50, 60 thereof with radio-frequency power. Radio-frequency power is not supplied to both sections 50, 60 through a single rf port 64, 66. In contrast, Applicants note that their particle accelerator system as claimed in Claim 35 comprises a port and a radio-frequency power source connected to such port. The radio-frequency power source is adapted to supply radio-frequency power to both the accelerating and bunching sections through the port. Further, Applicants note that Claim 35 depends from amended independent Claim 32 and, thus, includes all of the elements and limitations thereof. For at least these reasons, Applicants contend that Claim 35 is not anticipated nor rendered obvious by Yu or the other art of record. Therefore, Applicants further contend that Claim 35 is allowable as written.

With respect to Claim 36, Applicants have amended Claim 36 to clarify that the bunching and accelerating sections of Applicants’ particle accelerator system are adapted to receive radio-frequency power from a single port connected to a single radio-frequency power source. As described in the above remarks, this is in contrast to the particle accelerator disclosed by Yu that has two separate rf ports 64, 66 for receiving radio-frequency power from a single radio-frequency power source. Therefore, Applicants submit that amended Claim 36 is not anticipated nor rendered obvious by Yu or the other art of record, and that amended Claim 36 is, hence, allowable.

In regard to Claim 37, Applicants note that Claim 37 depends from amended independent Claim 32 and that by virtue of such dependency, Claim 37 includes all of the elements and limitations of amended Claim 32. As described in the remarks above pertaining to Claim 32, Applicants contend that amended Claim 32 is not anticipated nor rendered obvious by Yu or the

other art of record and, thus, is allowable. Therefore, at least due its dependency on allowable amended Claim 32, Applicants further contend that Claim 37 is also not anticipated nor rendered obvious by Yu or the other art of record and, thus, is allowable as well.

With respect to Claim 38, the Office Action states that Yu discloses an accelerating section “operable to communicate the radio frequency power from the radio frequency power source to the bunching section.” Applicants respectfully disagree with this statement because, as noted in the above remarks, the Yu particle accelerator includes two rf ports 64, 66 that supply radio-frequency power respectively to the first and second sections 50, 60 thereof. There is no disclosure of any radio-frequency power being communicated by the second section 60 to the first section 50, and with its disclosure of two separate rf ports 64, 66, Yu actually teaches away from radio-frequency power being communicated from the second section 60 to the first section 50. Nonetheless, Applicants have amended Claim 38 to clarify that unlike the second section of the Yu particle accelerator, the accelerating section of Applicants’ particle accelerator system is communicatively interposed between the bunching section and the radio-frequency power source for the communication of radio-frequency power from the radio-frequency power source to the bunching section through the accelerating section. For at least these reasons, Applicants assert that amended Claim 38 is not anticipated nor rendered obvious by Yu or the other art of record, and that amended Claim 38 is allowable.

Regarding Claims 40-43, the Office Action supports its rejection of these claims by asserting that cylindrical disks 14 of the Yu particle accelerator define a plurality of bunching cavities therebetween and a plurality of coupling cavities therebetween. Applicants respectfully disagree with this assertion because Applicants cannot find any disclosure in Yu that identifies a bunching cavity or a coupling cavity. Also, Applicants cannot find any disclosure in Yu as to which gaps between consecutive cylindrical disks 14 might comprise bunching cavities and which gaps between consecutive cylindrical disks 14 might comprise coupling cavities. Thus, Applicants submit that the Office Action’s rejection of Claims 40-43 is erroneous for these reasons. Additionally, Applicants note that Claims 40-43 are each dependent on amended independent Claim 32 directly or indirectly and, therefore, include all of the elements and

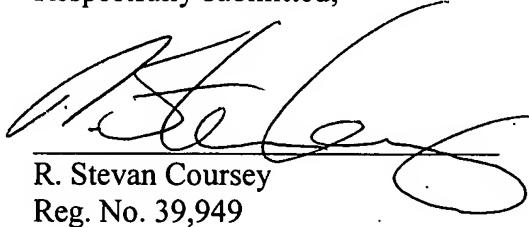
limitations of amended independent Claim 32, including bunching cavities having an axial dimension that increases for each consecutive bunching cavity in a direction between the first and second ends of the bunching section of Applicants' particle accelerator system. Notably, such bunching cavities and dimensions are not disclosed by Yu. Therefore, for at least these reasons, Applicants assert that Claims 40-43 are not anticipated nor rendered obvious by Yu or the other art of record and, as a consequence, assert that Claims 40-43 are allowable as written.

Third, the Office Action objected to Claims 7-8, 10-11, 22-25 and 39 "as being dependent upon a rejected base claim," but noted that these claims "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Responsive thereto, Applicants acknowledge that Claims 7-8, 10-11, 22-25 and 39 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, at this time, Applicants desire to defer rewriting of these claims in independent form to a subsequent response in order to attempt to obtain allowance of the underlying independent claims thereof.

CONCLUSION

In view of the amendments submitted herein and the above remarks, it is believed that the present patent application has been placed in condition for allowance. Thus, Applicant earnestly solicits early and favorable action. In the event that the Examiner has any questions or requires additional information pertaining to the present patent application, the Examiner is urged to contact Applicants' undersigned attorney.

Respectfully submitted,



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